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Manpower Costs of the Training Wing Five T-6B Transition Plan

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EMBA PROJECT REPORT

MANPOWER COSTS OF THE TRAINING WING FIVE T-6B TRANSITION PLAN

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Analysis and Manpower Cost Evaluation for TRAWING FIVE's T-6B Transition

EXECUTIVE SUMMARY

This project was undertaken at the request of the Deputy Commodore, Training Wing FIVE. In light of the coming transition from the T-34 to T-6 aircraft, the manpower cost from initial preparation through final execution remained uncertain. While most consultation projects involve an analysis and selection of a course of action, this unique project began with a course already determined and attempted only to determine the cost of that course. In order to determine this cost in terms of Instructor Pilots (IPs) lost from production during the transition, an interactive spreadsheet model was constructed and several pools of data were analyzed. A timeline for Instructor Pilot training was constructed based on the planned time to train, then a second timeline was constructed for the training of the Flight Instructor Training Unit (FITU) Instructor Pilots (FIPs) to ensure they would be prepared to qualify new Instructor Pilots in time for the arrival of the first T-6 Student Military Aviators (SMAs). Once this framework was constructed, numerous data values such as aircraft capacity and SMA-to-IP ratios were applied to ensure the answer was both accurate and comprehensive. The findings of this project reveal that, based on the currently planned T-6 training schedule for both SMAs and IPs, Training Wing FIVE will experience a deficit of T-34 Instructor Pilots commencing APR 2008 and concluding APR 2012, reaching a peak deficit of 36 Instructor Pilots at numerous points during that time period.

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I. INTRODUCTION AND BACKGROUND

A. INTRODUCTION

This project undertook the research, analysis and computations required to determine the manpower cost of Training Wing FIVE's T-6B transition plan, using the number of instructors lost as the metric standard. Given the Chief of Naval Air Training's (CNATRA's) goal to begin training the first class of T-6B Primary Student Military Aviators (SMA) in the T-6B by mid-fiscal year 2009 (Walsh, 2008), the instructor manpower issue is clearly time critical. Since the transition has been ordered without an offsetting increase in instructor manning or a decrease in SMA production requirements (Walsh, 2008), this problem has the potential to create a mission shortfall in the overall production of SMAs and resultant aviators. In order to clarify the reader's understanding, Appendix A is a reference list of acronyms used in this paper.

B. BACKGROUND

For the last 25 years Training Wings FOUR and FIVE have trained SMAs in the T-34C Turbo Mentor. Due to limitations of the T-34C and the T-37 (United States Air Force (USAF) primary trainer) inherent in their design service life, the Air Force and the Navy settled on a joint procurement program that would provide a common training system for both services' primary pilot training programs. The Air Force was first to take delivery of the Joint Primary Aircraft Training System (JPATS) system, replacing the tired T-37 fleet at both Randolph Air Force Base (AFB) and Moody AFB. The Navy's Training Wing FIVE was supposed to take delivery of the Navy's first T-6A in 2003 but

budgetary constraints prevented the purchase of enough aircraft to meet the Wing's training requirement. Fortunately, there were enough aircraft in the initial purchase to replace the T-34Cs used to train Student Naval Flight Officers at Training Wing SIX, so Training Wing SIX accepted delivery of the aircraft and successfully transitioned their two primary training squadrons in less than three years (Stibolt & Lovett, 2008). Since that time, procurement and production problems have repeatedly delayed the delivery dates for the Training Wing FIVE aircraft.

Based on current budgetary allotments, the contractor will deliver the first two T-6B aircraft on time in March 2009 with another 23 arriving in monthly installments starting in July 2009 (Training Wing FIVE, 2008). This means that the T-6B FITU needs to be ready to train the first squadron instructors by July 2009.

The actual replacement aircraft, the T-6B "Texan II," is just a part of the JPATS program which also encompasses simulators, syllabi, courseware, and training aids. Because of this, the transition from the T-34C will involve much more than just an aircraft replacement. Flight Training Instructions (FTIs) and Standard Operating Procedures (SOPs) will have to be rewritten. The syllabus must be reviewed for suitability before it is implemented. Ground school instructors will have to be trained. Airspace will need to be reallocated. Maintainers and Instructors must be retrained to work on and fly the new aircraft, respectively. To make the situation even more complex, the Air Force and the Navy are buying this program together, which means compromise. This transition to a common platform sets a new standard in multi-Service compatibility and interoperability, but also requires a considerable degree of adaptability as the two Services blend their separate, distinct training methods into a single

program. Therefore, a complex aircraft replacement program is further exacerbated by the required changes in supporting material and programs, and all of this is set in the context of a fundamental shift in the cultural mindset of the training squadrons. While transitions are rarely easy, this particular program contains elements that put it at the upper end of difficulty. In short, this transition program will be extremely demanding on all those involved and will result in numerous instructors being taken away from instructing duties under the current system. Since Training Wing FIVE must continue to produce primary graduates during the transition with no allowance given for additional manpower and no reduction in production requirements (Walsh, 2008), the overall challenge is undeniably daunting.

C. PROJECT OBJECTIVES

1. Create a spreadsheet model for the T-6B transition that provides interactive manning numbers for use in planning. (Appendix B is a list of terms from the spreadsheet, along with a brief explanation of each.)
2. Determine the manpower requirement to produce enough T-6B squadron IPs to teach the first class of T-6B SMAs.
3. Project the timeline flow, beginning with an initial cadre of 6 T-34C IPs and ending with enough retrained instructors to teach the first class of T-6B SMAs.
4. Determine the total cost of transition in terms of instructors lost.

D. PROJECT SCOPE

During the course of this consultation, the team collected and analyzed data from the current T-34C syllabus in use at Training Wing FIVE as well as the T-6A syllabus already in place at Training Wing SIX, located at Naval Air Station (NAS) Pensacola. In addition to the events required, the team also looked at current manning levels for both Instructor Pilots and Student Military Aviators within the squadrons. Since the T-6B will ultimately replace all T-34C aircraft, the end of the T-34C's service life was also taken into consideration. Statistical data was collected from Ed Fisher and Don Fisher, Training Wing FIVE program analysts, LCDR John Grebeta, Plans and Production Officer, Mike Giron, Rotary Analyst, LCDR Dave Persky, FITU Operations Officer, and Monty Willis, Training Wing FIVE plans director.

Areas of interest were:

- Ratios of SMA to IP, IP to FIP, SMA to simulator, and SMA to aircraft
- The scheduled arrival of mission critical assets such as simulators and aircraft
- T-34C retirement schedule (sundown)

The team did not:

- Generate alternative schedules for either the T-34 sundown or the T-6 introduction
- Attempt to estimate T-6 specific data pertaining to aircraft and simulator utilization rates or certain ratios (such as IP to student)

E. METHODOLOGY

From the outset, this project has been fundamentally different from most consulting projects. Traditionally, consultants analyze data in order to make recommendations on a course of action. This project, however, undertook a course that was already decided by higher authority and determined the cost of the action with no significant authority to change or influence the course already chosen.

Since the overall goal of this project was to determine the manpower deficit, the most logical approach appeared to be a regression through the flow of instructor preparation (Appendix C is a description of the various information flows used to determine the data necessary for the project). Based on the current plan, the number of SMAs in the first T-6B class will determine the number of instructor pilots (IPs) required to train them. That group of instructors will have to spend a finite amount of time under training in order to be prepared and qualified to instruct, which means there is a need for FITU Instructor Pilots, or FIPs, to train the IPs. These FIPs, in turn, must undergo their own training in order to become qualified FITU instructors in time to prepare the IPs. By beginning at the end and working back to the beginning, taking into account the necessary requirements at each stage along the way, the team has been able to derive cost data that is both accurate and relevant.

Data analysis created a critical component of this project, so a broad scope of data was collected. Quantities for T-6 and T-34 Students in Training (SITs) were computed by totaling the number of students already in the program (based on average time to train and previous check-in numbers) with new check-ins and subtracting any students completing the program, as well as any attrites. All IP requirements were

computed by taking the current T-34 SMA to IP ratio and applying it to any projected student population in the future. T-34 Instructor Under Training (IUT) loading was determined by collecting current data from the existing T-34 FITU. Aircraft capacity was determined by comparing the total current aircraft inventory to the maximum number of students capable of being supported. Aircraft loading was determined by calculating what percentage of both SMA and IUT SITs would be involved in flight events at any given time (based on syllabus).

Once the above values were determined, a T-6 Squadron IP requirement was calculated using an SMA-to-IP ratio and a percentage of the T-6 syllabus that involves flying. Once the overall requirement was determined, the data could be further manipulated by inputting arriving and departing T-6 IPs to determine a number of T-34 IPs that would need to undergo T-6 training in order to fully support the student population.

Projections of the squadron IP requirements allowed this project to plan for adequate IP training in advance, scheduling incoming IUTs to arrive at the FITU with adequate time to complete IP training prior to their required presence in the squadron. This same knowledge allowed for the projected training of FITU IPs, since the concepts are virtually identical.

Since even the best manning plan is worthless if it is not achievable, efforts were made to ensure critical assets such as aircraft and simulators supported the numbers involved in projecting future training. The arrival dates of T-6 assets (aircraft and simulators) were charted along with the departure dates of T-34 assets to evaluate whether or not assets were sufficient to support required training. In so doing, several

phases appeared in the timeline where projected training requirements will exceed asset capacity. These phases create scenarios that require further analysis to determine the best course of action.

Once the model was created to reflect the previously discussed methodology, model inputs were manipulated to evaluate the effects of eight distinct scenarios. Specifically, this project looked at points where capacity was exceeded and manpower deficit was minimized.

After all the data was collected and analyzed, the final answer was determined in two steps. First, a forecasted T-34 IP population was calculated by starting with the projected T-34 IP population for the previous period, subtracting out IPs pulled from T-34 production for T-6 IP or FIP training as well as IPs leaving the command, and adding in any new IPs arriving in the command. Once the number of T-34 IPs remaining was determined, it was simple procedure to compare that number to the number of T-34 IPs required. The difference revealed the deficit of T-34 IP manpower.

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II. RESULTS

The primary tool used to identify results was a spreadsheet model used for data analysis. Once completed, the T-6 Transition Model allowed this project to run various scenarios with different constraints in order to identify resource deficiencies. The absence of T-6 planning factors precipitated the use of two sets of scenarios. The first set of four scenarios was run keeping T-6 and T-34 capacity equal. An additional set of four scenarios was run with T-6 capacity greater than T-34 capacity. Each set contained the following four scenarios:

- Full T-6 class start in NOV 2009
- Full T-6 class start delayed six to seven months
- Mixed class loading scheduled for maximum constraint compliance
- Mixed class start in NOV 2009 using average input (an annualized level load designed to comply with constraints.)

The results are as follows:

A. T-34 AND T-6 PRODUCTION CAPACITY DEFICIT

1. T-34 RETIREMENT

Because T-34 aircraft are scheduled to retire prior to a reduction in T-34 students, demand will exceed capacity from the date that the first T-34s leave. If the initial T-6 class is delayed, the T-34 capacity deficit will be exacerbated.

2. T-6 PRODUCTION CAPACITY DEFICIT

By pushing the initial class start date back approximately six to seven months, a homogenous class strategy could be used. However, the production capacity of the initial T-6 aircraft would not be fully utilized. In addition, it was noted, unless the T-6 capacity is greater than the T-34, the third squadron transition would exceed the production capacity of the T-6. This capacity deficit would continue indefinitely without additional aircraft.

3. FULL VERSUS MIXED CLASS

By running a model using a full class of T-6 students versus a mixed class of T-6 and T-34 students, T-6 aircraft capacity was exceeded for an extended period of time. This demonstrated the need to start classes later, or use a mixed student strategy.

B. MANPOWER DEFICIT

Due to the time required to train IPs, as well as the requisite training to stand up a new FITU, a significant gap appeared between the point at which IPs would be drawn away from T-34 production and the point at which T-6 production would begin. Even after T-6 production begins, the T-34 cadre will continue to experience a significant shortage of IPs. This will create a significant burden on T-34 production with little hope of recovery that will not be alleviated until TRAWING FIVE nears completion of the transition.

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IV. RECOMMENDATIONS AND CONCLUSION

A. RECOMMENDATIONS

The recommendations of this project are as follows:

1. Petition requisite authority to delay the T-34 sundown in order to meet T-34 production requirements during T-6 transition.
2. Conduct further analysis to determine accurate T-6 planning factors.
3. Consider introducing T-6 training in a mixed class format.
4. Consider purchasing a higher percentage of aircraft readiness in the new maintenance contract.
5. Redistribute SMA production requirements among the various training squadrons (including Training Wing FOUR squadrons) to relieve production pressure from each squadron as it transitions.
6. Augment the T-34 squadrons with Naval Reserve personnel to minimize or negate the loss of active duty personnel removed from T-34 production.
7. Petition service manpower managers for additional instructor manpower during the transition.
8. Create a Master Training Flow Chart to use in predicting class training phase overlaps.

B. CONCLUSION

This project was undertaken to determine the cost of the T-6 transition in terms of T-34 Instructor Pilots lost from production. After considering the present data and the

projected numbers for asset arrival and future training, it has been determined that this course of action will indeed result in a significant shortage of IPs. Due to the myriad of options for asset management, the system will need to be closely monitored to ensure optimization of assets and minimize shortfalls. While it will vary from week to week based on actual (not projected) IP check-ins, check-outs, student loading, and a host of other factors not included in the scope of the project (such as significant weather events or aircraft groundings), the T-34 IP manning deficit is projected to last approximately four years (April 2008 to April 2012) and reach points where the IP deficit is as high as 36 Instructors.

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APPENDIX A

DEFINITIONS

CNATRA	Chief of Naval Air Training. The two star Admiral responsible for the administration of all air training for designated Naval personnel. Also refers to the office which supports the Admiral.
FIP	FITU Instructor Pilot. An instructor pilot assigned as FITU staff. A designated aviator who has successfully completed advanced FITU training and is qualified to instruct IUTs.
FITU	Flight Instructor Training Unit. A training unit, usually a squadron that is responsible for training and qualifying pilots to instruct SMAs and IUTs.
FTI	Flight Training Instruction. A written instruction that provides detailed information regarding the various aspects of training for a specific phase of flight training.
IP	Instructor Pilot. A designated aviator who has successfully completed FITU training and is qualified to instruct SMAs.
IUT	Instructor Under Training. A designated aviator who is in the FITU training program.
JPATS	Joint Primary Aircraft Training System. A complete training package for the primary flight training syllabus including, but not limited to, aircraft, simulators, written instructions and training syllabi.
SIT	Students In Training. The quantity of total students in a given population regardless of their phase in training, such as total number of T-34 Student Military Aviators or T-6 Instructors Under Training.
SMA	Student Military Aviator. A student from any branch of the military who is engaged in flight training pursuant to earning their wings and being designated a military aviator.
SOP	Standard Operating Procedure. A written policy that defines specific courses of action for expected circumstances.

APPENDIX B

SPREADSHEET TERMS

T-6 Student SIT:

$$Total.T6.Students.IN - Total.T6.Students.Out = T6.Student.Loading$$

The total number of students enrolled in the T-6 training pipeline at a specified period of time. This number is determined by starting with the total number of new T-6 student check-ins and subtracting the total number of check-outs (both syllabus completions and attrites). The resultant value is the T-6 Students In Training (SIT).

T-34 Student SIT:

$$Initial.T34Load + Total.T34.Students.IN - Total.34.Students.Out = T34.Student.Load$$

The total number of students enrolled in the T-34 training pipeline at a specified period of time. This number is determined by starting with the present load, adding the T-34 student check-ins and subtracting the total number of check-outs (both syllabus completions and attrites). The resultant value is the T-34 Students In Training (SIT).

T-34 Squadron IP Manning Required:

$$T34.Squadron.IP.\mathrm{Re}q = T34.IP / Stud.ratio * T34Student.load$$

The total number of Instructor Pilots (IPs) needed to support the T-34 SIT. This number is determined by multiplying the T-34 SIT with the T-34 IP to Student ratio. This ratio was derived by comparing current T-34 IP manning to current T-34 student loading.

T-34 Aircraft Capacity:

$$T34.AC.Capacity = Total.T34.AC/[T34.AC/(Stud + IUT)]$$

The total number of students the current aircraft population can support. This number is determined by adding the total quantity in the T-34 Student Flying SIT with the total quantity in the IUT Flying SIT (Student and IUT SITs are determined by multiplying each SIT by the percentage of the respective syllabus that involves actual flying).

T-6 Squadron IP Requirement:

$$T6.Squadron.IP.\mathrm{Re}q = T34.IP / Stud.ratio * T6.SIT$$

The total number of Instructor Pilots needed by a squadron to fully support a given load of T-6 students. This number is determined by multiplying the T-6 SIT with the T-6 IP to student ratio. NOTE: since there is no known value for a current Navy T-6 IP to student pilot ratio, this value is based on the current T-34 IP to student (pilot) ratio.

T-6 IUT Programming

$$IUT.Load = Total.IUTs.In - Total.IUTs.Out$$

The time-to-train values of incoming Instructors Under Training (IUTs), considering the three different syllabi based on their previous experience. For IUTs arriving from the fleet, the syllabus will be 17.1 weeks. For IUTs from current T-34 instructor positions, 8 weeks. For IUTs transitioning from the T-6A to T-6B, 4 weeks (T-6 Transition Task Force, 2008)

FIP Requirement:

$$FIP.\mathrm{Re}quirement = IUT.SIT * FIP / IUT$$

The total number of FITU Instructor Pilots needed by the FITU to fully support a given load of IUTs. This number is determined by multiplying the IUT SIT with the FIP to IUT ratio. NOTE: since there is no known value for a current Navy T-6 FIP to IUT ratio, this value is based on the current T-34 FIP to IUT ratio.

FIP Programming:

The time-to-train values of incoming FITU Instructor Pilots. Although the expected training time is twelve weeks (T-6 Transition Task Force, 2008) for all incoming FIPs regardless of background, the spreadsheet provides room to delineate between FIPs arriving from a T-34 background and FIPs arriving from a T-6B background.

T-6 Sim Capacity (Max):

$$SIM /(Total.SIT).\max imum = 1device / 12events = .083$$
$$SIMCapacity.Maximum = .\#Simulators / .083$$

The total number of students the projected T-6 simulator population will support. This number is determined by multiplying the projected simulator inventory at a given time with the simulator-to-student (both SNA and IUT) ratio. NOTE: since

there is no known value for a current Navy T-6 simulator to student ratio, this value is based on current T-34 simulator to student ratio.

T-6 Sim Capacity (Utilization):

$$SIM\ /(Total.SIT).utilization = 1device/(12events * utilizationrate) = .115$$
$$SIMCapacity.utilization = .\#Simulators / .083$$

The number of students the projected T-6 simulator inventory will support using the current T-34 simulator utilization rate.

T-6 Sim Loading:

$$Student.Simulator.SIT = Student.Load * Simulator\%MCG$$
$$IUT.Simulator.SIT = IUT.Load * Simulator\%MCG$$
$$T6.Total.Sim.Sit = Student.Sim.Sit + IUT.Sim.SIT$$

The total number of personnel that will need to be scheduled for simulator events at a given time. This number is determined by adding the Student Simulator SIT and the IUT Simulator SIT (Student and IUT SITs are determined by multiplying each SIT by the percentage of the respective syllabus that involves simulator training).

T-6 Aircraft Capacity:

$$T6.AC/(Student + IUT) = T34.AC/(Student + IUT)$$
$$T6.AC.Capacity = Total.T6.AC/[T6.AC/(Stud + IUT)]$$

The total number of personnel the projected T-6B aircraft inventory will support. This number is determined by multiplying the number of available aircraft by the aircraft to student ratio. NOTE: since there is no known value for a current Navy T-6 aircraft to student ratio, this value is based on the current T-34 aircraft to student ratio.

T-6 Aircraft Loading:

$$Student.Flying.SIT = Student.Load * Flight\%MCG$$
$$IUT.Flying.SIT = IUT.Load * Flight.\%MCG$$
$$T6.Total.Flying.Sit = Student.Flying.Sit + IUT.Flying.SIT$$

The total number of personnel that will need to be scheduled for flight events at a given time. This number is determined by adding the Student Flying SIT and the IUT Flying SIT (Student and IUT flying SITs are determined by multiplying each SIT by the percentage of the respective syllabus that involves actual flying).

Final Answer:

$$T34.Personnel.\text{Re}maining = StartingPersonnel - FIPs.pulled - IUTsPulled - PCSout + PCSin$$

$$T34.IP.Deficiency = T34.Personnel.\text{Re}maining - T34.Personnel.\text{Re}quired$$

The total cost of the T-6 transition, measured in terms of lost T-34 instructors. This number is determined by starting with the current T-34 IP manning, subtracting those IPs pulled from T-34 production for T-6B FIP or IUT training as well as those IPs leaving the squadron due to PCS orders, and adding in new T-34 IPs as they arrive from the T-34 FITU.

APPENDIX C

INFORMATION FLOW

T-6 Manning Concept:

The idea behind the complete T-6 manning concept is a timeline that commences with the beginning of training for the "Initial Six" FITU instructors and ends with the final squadron being fully manned with qualified IPs. During this timeline there are two manpower constraints, or "ceilings," that must be considered.

The flow begins with the Initial Six, IPs who have been chosen to stand up the initial T-6 FITU for Training Wing FIVE. In order for these six to be adequately prepared, they must first go to Training Wing SIX at NAS Pensacola for training in the T-6A. Once they are complete and qualified in the T-6A, they must then go to the factory for a period of time in order to be trained on the differences between the Alpha and Bravo models (since their T-6 training will have been in a T-6A but Training Wing FIVE will be receiving T-6B models). Once these six are fully trained, they will be prepared to initiate FITU training for Training Wing FIVE. However, since the T-6 program encompasses a completely new syllabus in addition to the new aircraft, these initial six will be required to perform all aspects of T-6 training, including Safety, NATOPS/ Standardization, FTI writing and various other administrative responsibilities in addition to their roles as flying instructors in the aircraft.

This FITU manning number leads to the first constraint encountered in the timeline, that of FITU capacity. Using the current T-34 FIP to IUT ratio, we quickly see that the initial six FIPs will only be able to support a FITU population of 11 IUTs. How

fast these IUTs will complete the syllabus and open a slot for another IUT depends on the background of each IUT. For those coming straight from a fleet squadron and commencing their IP tour for the first time, a standard syllabus of 17 weeks has been determined (T-6 Transition Task Force, 2008). For those IPs who are already established in the T-34C and need to transition to the new aircraft the syllabus will be 8 weeks (T-6 Transition Task Force, 2008). For those infrequent IPs who are already qualified IPs in the T-6A and simply need difference training on the T-6B, the syllabus will be 4 weeks (T-6 Transition Task Force, 2008).

Once these IPs are qualified and available to train SMAs, the second constraint surfaces in the form IP capacity. This capacity is calculated by multiplying the number of T-6B IPs with the T-34 SMA-to-IP ratio. In a standard scenario, this training-imposed limit on IP availability would determine when to initialize SMA training and at what rate to introduce them into the syllabus. However, in this unique situation the Navy has already established a date for SMA training to commence, so the only variable left is how many SMAs to introduce into the T-6 syllabus at one time.

T-34 Manning Concept:

The total manning concept incorporates the flow from the T-6 flow mentioned previously, but also takes into consideration the continuing demand for T-34 IPs. Since the T-6 transition will take place in three different squadrons over a timeline of approximately three years, there will continue to be a need for new T-34 IPs in the other squadrons (to replace IPs checking out) well after the T-6 transition has begun. This means that as incoming pilots report to Training Wing FIVE, a determination will need to

be made that decides to which FITU the pilots report. Since T-34 IPs must begin FITU training approximately four months prior to being qualified, the T-34 IP corps will endure a shortage of IPs as current IPs check out and incoming pilots are diverted to the T-6 FITU.

Programming and Constraints:

In addition to the manning constraints described previously, there are three constraints imposed by the capacity of critical assets, namely, T-34 aircraft, T-6 aircraft and T-6 simulators. Since both SMA and IUT syllabi contain events that must be conducted in either an aircraft (T-34 or T-6) or a simulator, the overall transition problem must include an awareness of these constraints. To determine what is required for each asset, each syllabus is analyzed to determine the percentage of the whole that must be executed in each asset (versus classroom instruction, aircraft versus simulator, etc.). This percentage is taken from the Master Curriculum Guide, and since all students (either SMA or IUT) will be enrolled in their respective syllabus, the determined percentage of syllabus spent in any singular asset will also yield a corresponding percentage of the student population engaged in that asset at any one time. By adding the asset requirements from the SMA and IUT populations together, a total asset requirement is realized. This number is then compared to the asset capacity to determine if the proposed manning solution can be supported by the assets involved.

T-6 IP Requirement:

In the absence of a current Navy T-6 SMA to IP ratio, the current T-34 SMA to IP ratio was used. To determine a value for the T-6 IP requirement, the SMA to IP ratio is simply applied to the projected T-6 student load, or Student In Training (SIT) value.

T-6 FITU IP requirement:

This requirement is determined by taking the same logic applied to the IP requirement and advancing it one more stage. Using the IP requirement, an IUT to FIP ratio (based on current T-34 IUT to FIP data) is applied to determine the number of FIPs necessary train the IUT population.

T-34 Aircraft Capacity:

Since both SMAs and IUTs require use of the aircraft, both populations must be accounted for in order to develop an accurate number. First, the two SITs are multiplied by the syllabus percentage that requires an aircraft, and the resultant value gives us the flying SIT. By adding these numbers together, a total T-34 flying SIT is determined. Second, the student to aircraft ratio is determined by dividing the total flying SIT by the total number of aircraft available. If an assumption is made, that Training Wing FIVE is currently asset limited, then this ratio can be reversed to reveal total student capacity capable of being supported by the current quantity of aircraft. By multiplying the total number of aircraft by the student to aircraft ratio, a maximum student capacity is determined.

T-6 Aircraft Capacity:

This number is determined in exactly the same method that was applied to the T-34 capacity problem, with two assumptions included in the calculations. The first assumption is that the total T-6 SIT will require the same number of aircraft as the existing T-34 SIT. The second assumption is that the projected inventory of T-6 aircraft is expected to match the production capacity of the current inventory of T-34 aircraft.

T-6 OFT Simulator Capacity:

In the same framework of the aircraft capacity problems, the simulator capacity can be determined by first calculating the percentage of the syllabus that requires an OFT and multiplying that percentage by the student population. By doing this for both the SMA and IUT populations, a total OFT SIT population can be determined. If the assumption is made that the T-6 OFT utilization rate will be similar to the current T-34 simulator utilization rate, then the maximum capacity for a given number of OFTs can be determined. This is done by taking the maximum number of daily events per unit, multiplying by the current utilization rate, then taking that result and multiplying by the projected number of OFT devices. This will yield the total number of students (both SMA and IUT) that can be supported with a given number of OFTs.

T-6 UTD Simulator Capacity:

This number is determined in the same manner as the OFT capacity described previously, but using UTD numerical values (both for percentage of syllabus and number of devices).

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